| OPTIONAL INFORMATION | |
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| Name of School: | Date of Inspection: |
| Vocational Program/Course/Room: | Signature of Inspector: |

# ELECTRICAL - GENERAL REQUIREMENTS
## SELF INSPECTION CHECKLIST

**Guidelines:** This checklist covers some of the regulations issued by the U.S. Department of Labor - OSHA under Subpart S - 29 CFR 1910.303; 1910.305; and 1910.335 which were adopted by reference. It also deals with selected regulations from N.J.A.C. 6:22 and N.J.A.C. 5:18-2.9 issued by the New Jersey Department of Education School Facility Planning Service and the New Jersey Department of Community Affairs Bureau of Fire Safety respectively. It applies to all electrical utilization systems. This checklist does not cover: installations in ships, watercraft, railway rolling stock, aircraft, or automotive vehicles other than mobile homes and recreational vehicles. Definitions of underlined terms are provided at the end of the checklist to help you understand some of the questions. Any question marked with the symbol ☹ indicates a history of previous violations in vocational schools.

Regulations dealing with over 600 volts, nominal have not been addressed in this checklist. If voltages in excess of 600 volts are encountered, OSHA regulations in 29 CFR 1910.303 should be consulted.

| **Examination, Installation, and Use of Equipment** | Please Circle |
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| 1. Are only approved conductors and equipment used for electrical installations? [29 CFR 1910.303(a)]<br><br>Note: Conductors and equipment must be listed or labeled by recognized testing laboratory such Factory Mutual (FM). | Y N N/A DK |

| Comments/Corrective Action |
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| 2. | Is equipment used and installed in accordance with instructions on listing or label? [29 CFR 1910.303(b)(2)] | Y N N/A DK |
| 3. | Are instructional spaces provided with sufficient outlets to satisfy the programs needs with not less than two duplex outlets remotely located? [N.J.A.C. 6:22-5.4(f)3] | Y N N/A DK |
| 4.☹ | Is all electrical equipment free from recognized hazards that are likely to cause death or serious physical harm to students and teachers? [29 CFR 1910.303(b)(1)] | Y N N/A DK |

**Note: This paragraph was the most frequently cited violation in 1989 in vocational facilities.** Violations included: male plugs had fibre insulators and were not dead fronted; metal junction boxes were being used on extension cords; metal junction boxes were being used on the ends of pendants; receptacles were loose in their mountings; there were open light sockets exposing live parts; an electric outlet strip had an open neutral reading when tested with a circuit analyzer; on/off switch boxes for fans were not secured to the wall; heavy items were hanging from the lighting fixtures; floor mounted receptacles were loose in their mountings; receptacles were broken; and electric cords were frayed, loose and had exposed wires.

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| 5. | Is wiring in good condition and not damaged or frayed? [N.J.A.C. 5:18-2.9(a)7 with NFPA 70] | Y N N/A DK |

**Splices**

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| 6. | Are conductors spliced or joined with devices suitable for the use, or by brazing, welding or soldering with a fusible metal or alloy? [29 CFR 1910.303(c)] | Y N N/A DK |

Comments/Corrective Action

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| 7. | Are soldered splices first joined so as to be mechanically and electrically secure without solder and then soldered? [29 CFR 1910.303(c)] | Y N N/A DK |
| 8. | Are all splices, joints and free ends of conductors covered with adequate insulation? [29 CFR 1910.303(c)] | Y N N/A DK |

### Arcing Parts

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| 9. | Are all parts of electrical equipment which ordinarily produce arcs, sparks, flames or molten metal enclosed or separated and isolated from all combustible material? [29 CFR 1910.303(d)] | Y N N/A DK |

### Marking

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| 10. | Is all electrical equipment marked with the manufacturer's identity? [29 CFR 1910.303(e)] | Y N N/A DK |
| 11. | Is all electrical equipment marked with the voltage, current, wattage or other ratings as necessary? [29 CFR 1910.303(e)] | Y N N/A DK |
| 12. | Are these markings of sufficient durability to withstand the working environment? [29 CFR 1910.303(e)] | Y N N/A DK |

### Identification of <u>Disconnecting Means</u> and Circuits

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| 13.☹ | Is each <u>disconnecting means</u> for motors and appliances legibly marked to indicate its purpose, unless located and arranged so the purpose is evident? [29 CFR 1910.303(f)] | Y N N/A DK |

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| 14.☹ | Is each service, feeder and branch circuit at its disconnecting means or overcurrent device legibly marked to indicate its purpose, unless located and arranged so the purpose is evident? [29 CFR 1910.303(f)]<br><br>Note: Circuit breaker panels should be marked to clearly indicate the purpose of each circuit breaker. | Y | N | N/A | DK |

**600 Volts, Nominal, or Less**
**Working Space About Electric Equipment**

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| 15. | Is there sufficient access and working space provided around all electrical equipment to provide ready and safe operation and maintenance? [29 CFR 1910.303(g)(1)] | Y | N | N/A | DK |
| 16.☹ | Are sufficient work clearances (see note) maintained around all equipment operating at 600 volts or less? [29 CFR 1910.303(g)(1)(i)]<br><br>Note: Working distances around electrical equipment varies according to the nominal voltage to the ground, exposed live parts and year equipment was installed. These distances vary from 2.5 to 4 feet. Consult OSHA 29 CFR 1910.303 for details. | Y | N | N/A | DK |
| 17.☹ | Are **required** working spaces around electrical equipment not used for storage? [29 CFR 1910.303(g)(1)(ii)] | Y | N | N/A | DK |
| 18. | When there are live parts normally exposed on the front of switchboards or motor control centers, is the working space in front of such equipment greater than or equal to 3 feet? [29 CFR 1910.303(g)(1)(iv)] | Y | N | N/A | DK |

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19. Is illumination provided for all working spaces around service equipment, switchboards, panel boards and motor control centers installed indoors? [29 CFR 1910.303(g)(1)(v)] Y N N/A DK

20. Is there a minimum head-room of 6 feet, 3 inches of working space about service equipment, switchboards, panel boards, or control centers? [29 CFR 1910.303(g)(1)(vi)] Y N N/A DK

**600 Volts, Nominal, or Less**
**Guarding of Live Parts**

21.☹ Are live parts of electrical equipment operating at 50 volts or more guarded against accidental contact by approved cabinets, or other forms of approved enclosures? [29 CFR 1910.303(g)(2)(I)] Y N N/A DK

Note: This means all splices should be in junction boxes or other proper enclosure. The requirement to guard the particular live part is not applicable in any of the following situations:

(a) By location in a room, vault, or similar enclosure that is accessible only to qualified people.

(b) By suitable permanent, substantial partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens shall be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.

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(c) By location of a suitable balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.

(d) By elevation of 8 feet or more above the floor or other working surface.

22.☹ In areas where electrical equipment would be exposed to physical damage, are the enclosures or guards so arranged and of such strength to prevent such damage? [29 CFR 1910.303(g)(2)(ii)] Y N N/A DK

Note: Incandescent and fluorescent light bulbs should be guarded if subject to physical damage. Light fixtures should have protective plates.

23. Are all entrances to rooms or other guarded locations containing exposed live parts marked with conspicuous warning signs forbidding unqualified persons to enter? [29 CFR 1910.303(g)(2)(iii)] Y N N/A DK

24. When normally enclosed live parts are exposed for maintenance and repair, are they guarded to protect unqualified persons from contact with the live parts? [29 CFR 1910.335(a)(2)(ii)] Y N N/A DK

25. Are safety signs, safety symbols, or accident prevention tags used where necessary to warn students/teachers about electrical hazards which may endanger them? [29 CFR 1910.335(a)(2)(ii)] Y N N/A DK

Comments/Corrective Action

### Wiring Methods - General Requirements

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| 26. | Are all metal raceways, cable armor, and other metal enclosures for conductors metallically joined together into a continuous electric conductor including connections to all boxes, fittings, and cabinets as to provide effective electrical continuity? [29 CFR 1910.305(a)(1)(I)] | Y N N/A DK |
| 27. | Is wiring in ducts used to transport dust, flammable vapors and exhaust from commercial-type cooking equipment prohibited? [29 CFR 1910.305(a)(1)(ii)] | Y N N/A DK |

### Wiring Methods - Cable Trays

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| 28. | Are only acceptable types of cables used in cable trays? [29 CFR 1910.305(a)(3)(i)]<br><br>Note: Consult 29 CFR 1910.305(a)(3)(i) for complete list of acceptable types of cables. | Y N N/A DK |
| 29. | Are cable tray systems prohibited in hoistways or where subjected to severe physical damage? [29 CFR 1910.305(a)(3)(ii)] | Y N N/A DK |

Definitions:

Approved means acceptable to the authority enforcing this checklist. The authority enforcing this checklist is the New Jersey Department of the Labor and the New Jersey Department of Education.

| Comments/Corrective Action |
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Approved for the purpose means determined by a nationally recognized testing laboratory, inspection agency or other organization concerned with the product evaluation as part of its listing and labeling program.

Branch Circuit means the circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

Disconnecting means means a device, or group of devices, or other means by which the conductors of a circuit can be disconnected from their source of supply.

Feeder means all circuit conductors between the service equipment, or the generator switchboard of an isolated plant, and the final branch-circuit overcurrent device.

Qualified person means one familiar with the construction and operation of the equipment and the hazards involved. Whether an employee is considered to be a "qualified person" depends upon various circumstances in the workplace. It is possible and, in fact, likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment. A person who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person is considered to be a qualified person for the performance of those duties.

Raceway means a channel designed expressly for holding wires, cables, or busbars, with additional functions as permitted. Raceways may be of metal or insulating materials, and the term includes rigid metal conduit, rigid nonmetallic conduit, intermediate metal conduit, liquidtight flexible metal conduit, flexible metallic tubing, flexible metal conduit, electrical metallic tubing, underfloor raceways, cellular concrete floor raceways, cellular metal floor raceways, surface raceways, wireways, and busways.

Service means the conductors and equipment for delivering energy from the electricity supply system to the wiring system of the premises served.